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Thismia mullerensis (Burmanniaceae), a New Species from Muller Range, Central Kalimantan

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A new species of the genus *Thismia* (Burmanniaceae), *T. mullerensis*, is described and illustrated from Muller Range, Central Kalimantan, Indonesia. It appears to belong to sect. *Euthismia* Schltr. (sect. *Thismia*) in having inner perianth free, spreading and roots vermiform, creeping, and to subsect. *Odoardoa* Schltr., having perianth lobes equal in length and size. It most resembles *T. alba* that was collected in 1930 from Malay Peninsula and *T. lauriana* reported from Central Kalimantan in 1996, but differs in flower structure and color. This species is the third species of the genus *Thismia* reported from Central Kalimantan.

Key words: achlorophyllous, Burmanniaceae, Central Kalimantan, flora, Malesia, new species, saprophyte, *Thismia mullerensis*,

The genus *Thismia* Griff. (Burmanniaceae) consists of more than 30 species of small saprophytes (Ridley 1924, Jonker 1948, Stone 1980, van Steenis 1982, Jarvie 1996, Saunders 1996, Yang et al. 2002), and most of these species appear to have been collected only once or a few times. This is because of their rareness and smallness. In addition to it, terrestrial part of *Thismia* can be found only in flowering time and successive fruiting time. Therefore, Jonker (1948) noted that further collection would lead finding of new species of this genus. In fact, after Jonker (1948), several new species of this genus have been reported. *Thismia taiwanensis* reported from Taiwan is the latest species described (Yang *et al.* 2002). For Central Kalimantan, Jarvie *et al.* (1998) listed two species of *Thismia*. While making collections for floristic research of the Muller Range in Central Kalimantan, Indonesia, we found a species of *Thismia* (Fig. 1), which resembles *T. alba* Holttum that was only once collected from Pahang, Malay Peninsula, by E. J. H. Corner on 30 November, 1930. It also resembles to *T. lauriana* reported by Jarvie (1996) from Central Kalimantan. Detailed comparison with related species revealed it as a new species of *Thismia*. Here the species is formally named and described here as *T. mullerensis* H. Tsukaya et H. Okada.

Thismia mullerensis H. Tsukaya et H. Okada, **sp. nov.** (Figs. 1, 2, 3)
Species perianthio albo, lobis tentaculis 20 mm longis terminatibus et stigmatibus bifidis a con-

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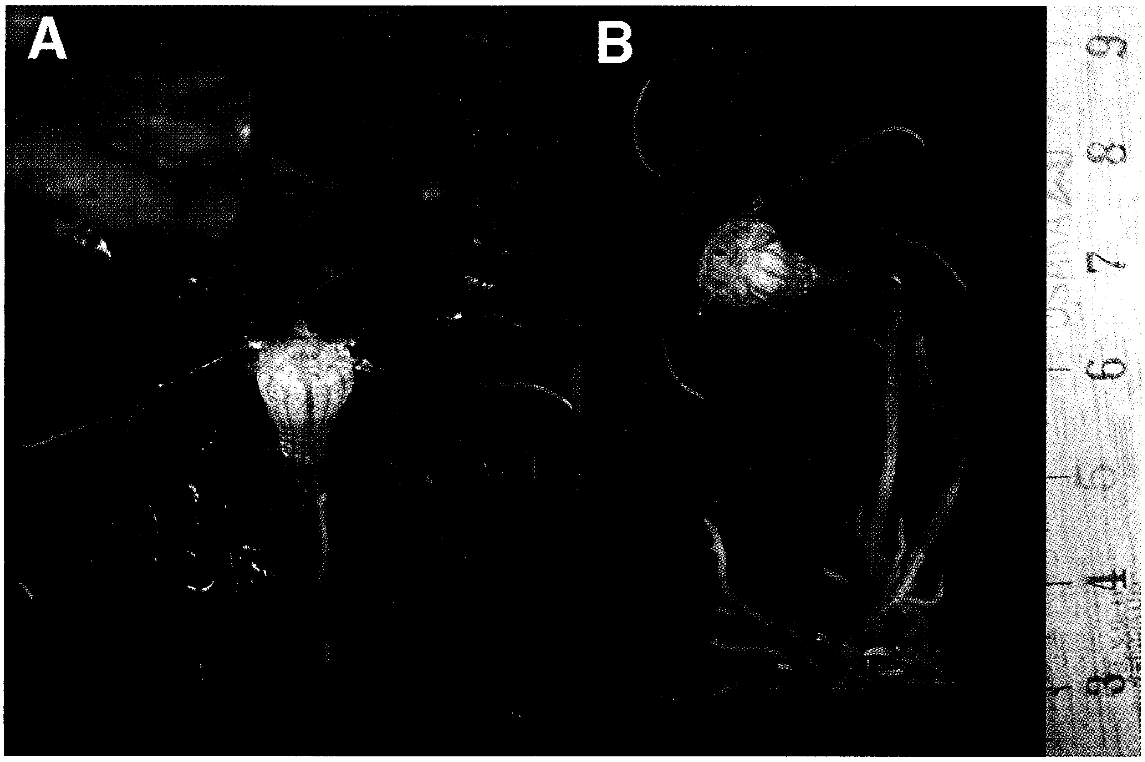

FIG. 1. *Thismia mullerensis* H. Tsukaya et H. Okada in the native habitat. A, A flowering plant. B, Whole plant. Unit of scale, 1 cm. Photographs were taken in the native habitat in Muller Range, Central Kalimantan in 20 December, 2004.

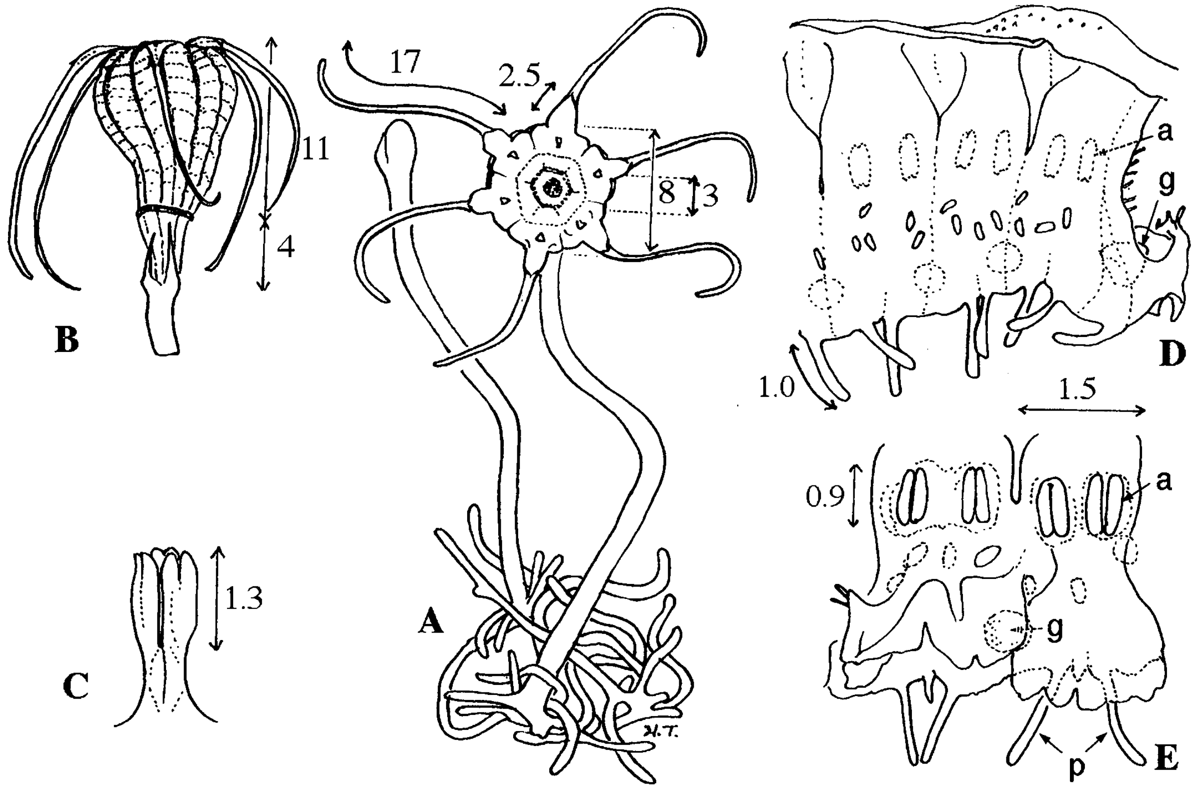

FIG. 2. *Thismia mullerensis* H. Tsukaya et H. Okada. A, whole plant; B, lateral view of perianth tube and subtending bracts; C, stigma; D, androecium viewed from inside of the corolla tube; E, adaxial side of the androecium viewed from space between the perianth tube and the androecium. Unit of size is mm.

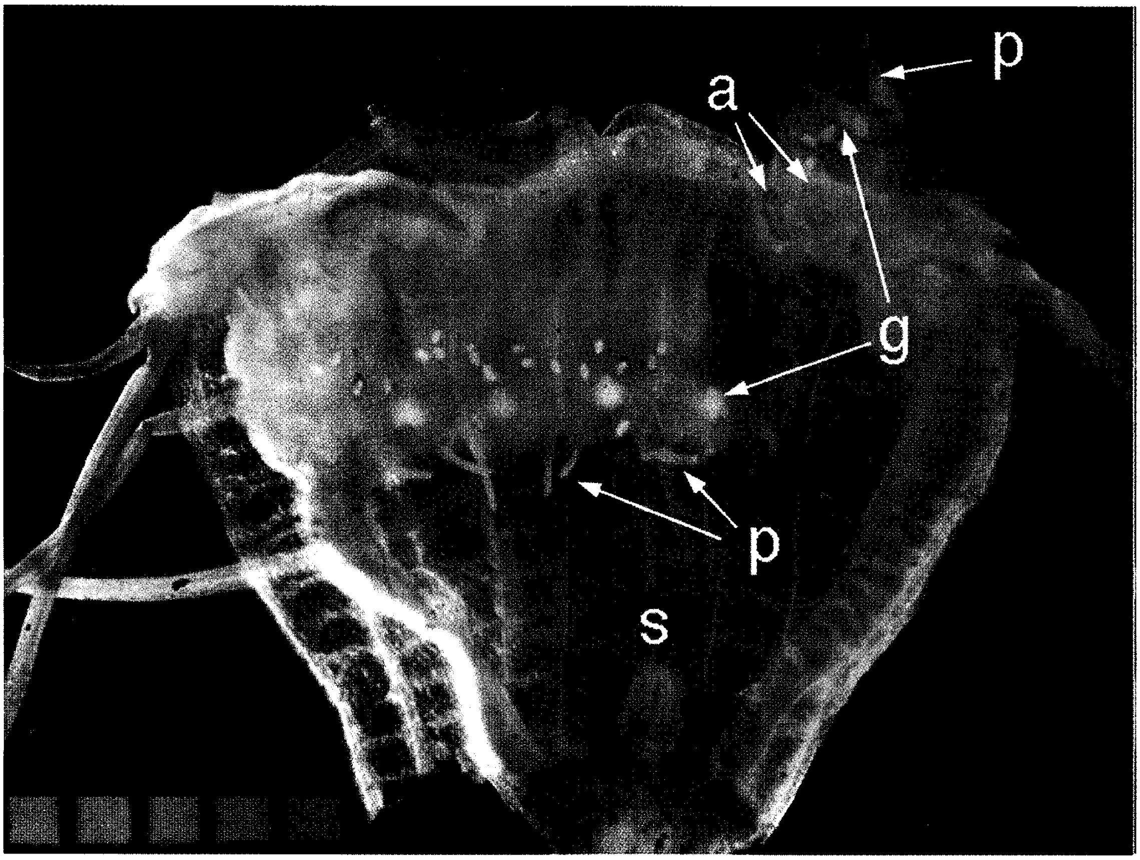

FIG. 3. Magnified view of perianth tube of *Thismia mullerensis*. Inside view of perianth tube after fixation in ethanol is shown. A part of androecium (right) was turned upward to show anthers. Unit of scale, mm.

generibus diversa. A *Thismia alba* Holttum perianthio albo cum striis 12 fusco-purpureis signatis, tentaculis lobis eius lilacinis, antherae appendicibus ad apicem marginis liberi duobus crassi-filiformibus bene differt.

Type: INDONESIA, Central Kalimantan: Muller Range, under forest along Sungai Sopan, ca. 170 m, near to 00°11'N, 113°31'E, 20 December, 2004, *H. Okada et al. 406* (holotype: BO [fl. & rhizoid]; isotype: TI [fl. bud & rhizoid]).

Small, achlorophyllous saprophyte. Roots creeping, branched, brownish-white tips. Stem simple, solitary flowered, ± 5 cm, white. Just beneath the flower-subtending bracts, stem blushes pale red. Bracts 2, 4 mm long, with apex acute. Perianth of 6 tepals fused to form a basal perianth tube, free apically; perianth tube actinomorphic, ca. 11 mm long, ca. 8 mm wide, white with 12 thin brown-purple streaks, leading down from each perianth lobe and from joint between lobes. Transverse bars throughout the perianth tube inside. Lobes triangular, 2.5 mm long, white at the base, terminated by pale purple, tentacles ca. 17 mm long. Annulus prominent, purple. Filaments 6, flattened, borne on the thickened margin of the perianth tube, down curved, with 2 thick-filiform anther appendages at the free apical margin. Anthers ca. 0.9 mm long. Stigmas 3, free, ca. 1.3 mm long.

Distribution and ecology: *Thismia mullerensis* is only known from the type locality in Muller Range, Central Kalimantan. The locality was a disturbed tropical hill evergreen rain forest contained tall trees, *i.e., Shorea* spp. (Dipterocarpaceae), *Lithocarpus* spp. (Fagaceae) and etc., and small trees, such as *Agrostistachys* sp., *Aposusa* sp., *Baccaurea* sp., *Mallotus* spp. (Euphorbiaceae), *Garcinia* spp. (Guttiferae), *Ardisia* spp., *Labisia* sp. (Myrsinacae), *Urophyllum* sp., *Psychotria* spp., *Lasianthus* spp. (Rubiaceae), and so on. We collected this material in the rainy season, as known for other species such as *T. taiwanensis* (Yang *et al.* 2002) and *T. clavigera* (Stone 1980). The population of *T. mullerensis* had only one flower and one flower bud. During the intensive expedition with encountered this collection, we could not find any other individual.

Notes: Within the treatment of Jonker (1948), *Thismia mullerensis* would appear to belong to sect. *Euthismia* Schltr. in having inner perianth free, spreading and roots vermiform, creeping, and to subsect. *Odoardoa* Schltr., having perianth lobes equal in length and size (Figs. 1, 2). Amongst them, *T. alba* Holttum reported from Malay peninsula and *T. aseroe* Becc. from Singapore and Malay peninsula appear to be closely related to *T. mullerensis* (Jonker 1948). Moreover, *T. bifida* M. Hotta described from Sarawak (Hotta 1967) and *T. lauriana* Jarvie recently reported from Bukit Raya, Central Kalimantan also resembles to *T. mullerensis*. *Thismia mullerensis* differs from *T. alba* and *T. aseroe* in having horizontal bars throughout the perianth tube inside (Figs. 1, 2). It also differs from *T. aseroe* and *T. bifida* in having whitish perianth tube (Fig. 1) rather than orange-yellow perianth tube. *Thismia mullerensis* is very similar to *T. alba* in size and whitish color of the flower, but is different in the following points: *T. mullerensis* has 2 thick-filiform appendages at the free apical margin of anthers (Figs. 2, 3), while *T. alba* has only one thick filiform; has 12 thin brownish purple streaks on the perianth tube (Figs. 1, 2) while *T. alba* has 6 ochraceous-brown streaks altering thin yellow lines; has purple annulus (Figs. 1, 3) while *T. alba* has bright yellow annulus; and again has horizontal bars throughout the perianth tube inside while *T. alba* has the horizontal bars basally only. *Thismia lauriana* is the another most closely related species of *T. mullerensis* in terms of possession of 2 thick-filiform appendages on the apex of anthers and horizontal bars throughout the perianth tube inside (Jarvie 1996). However, *T. lauriana* is far larger (tentacles of tepals up to 70 mm rather than 17 mm) than *T. mullerensis*.

Taken together, *Thismia mullerensis* is the third species of genus *Thismia* in addition to two species listed from Central Kalimantan (Jarvie *et al.* 1998). *Thismia mullerensis*, along with *T. lauriana* and *T. bifida*, can be inserted into the 'Key to species' of *Thismia* in Flora Malesiana I, 4 (Jonker, 1948) 22 with modification done by Jarvie (1996) as follows:

7. Stigmas bifid.
  8. Transverse bars found throughout the perianth tube inside. Anther appendages 2
    9. Perianth white with 12 brownish purple streaks; lobes with tentacles ca. 17 mm .... *T. mullerensis*
    9. Perianth white with 12 white streaks; lobes with tentacles ca. 70 mm .... *T. lauriana*
  8. Transverse bars found only in the basal part of the perianth tube. Anther appendages 3 .... *T. bifida*
7. Stigmas not bifid.

Further botanical surveys will lead finding of more new species of *Thismia* from Malesia. Expeditions in rainy season is difficult to be carried out, however, it may be necessary to reveal biodiversity of this genus consisted with small, ephemeral species.

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